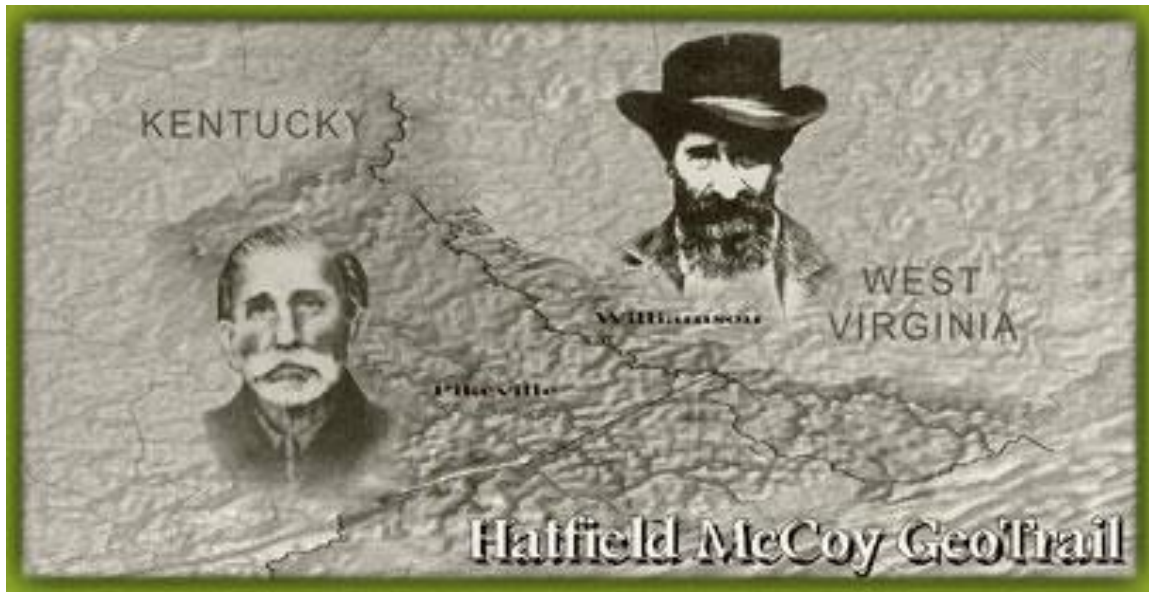
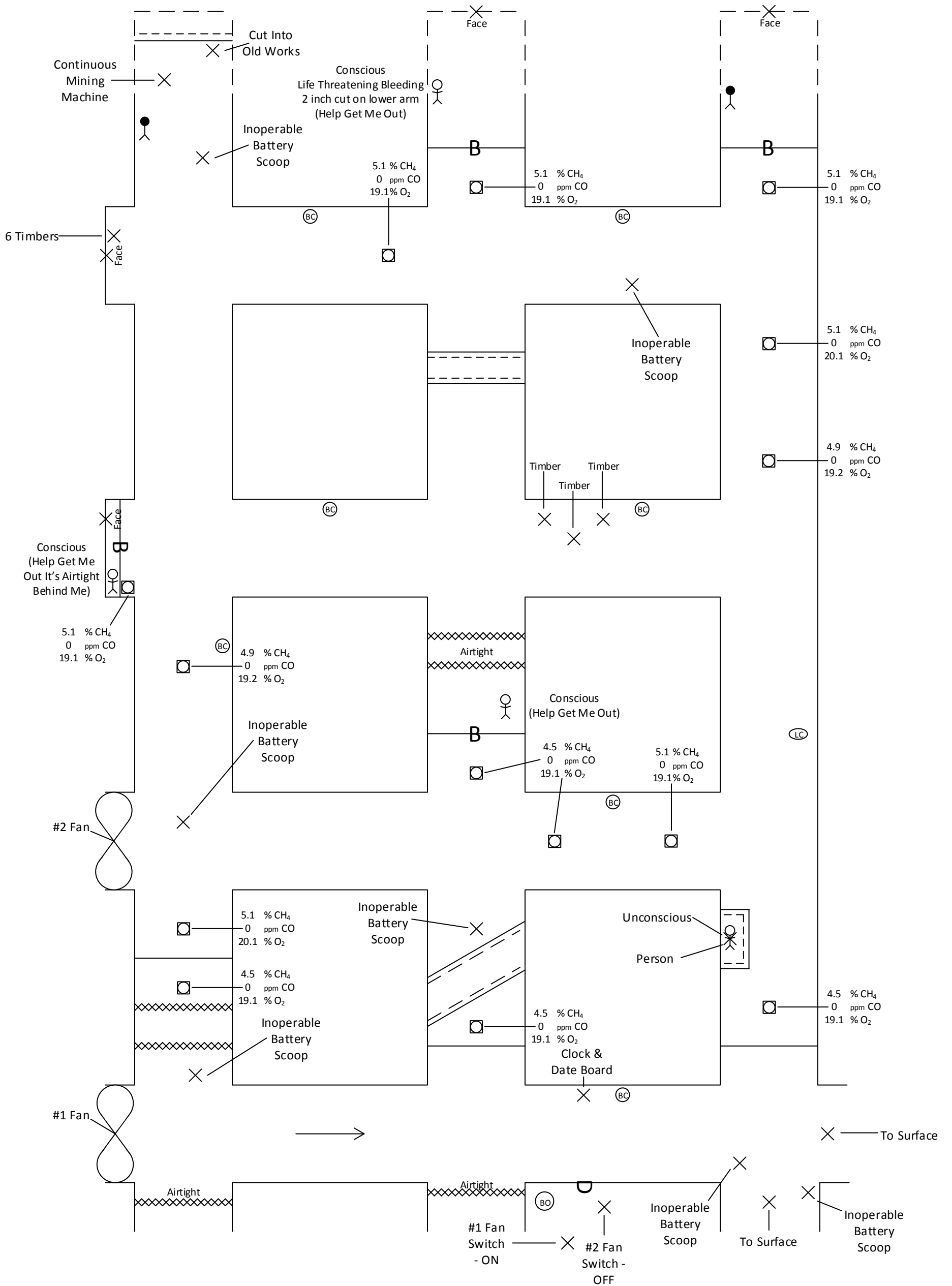


Hatfield & McCoy Mine Safety Competition Day 1

MINE RESCUE PROBLEM



Problem Map



STATEMENT

Thanks for your team coming to help the Rough and Tough coal mine with the rescue and recovery work. Your team is located in the 1st line of crosscuts underground in the fresh air base. Six miners entered the mine to run coal this morning on the dayshift. Around 8am the outside man stated the #1 fan shut off which is a blowing only fan and would not restart due to fuses had blown on the power pole next to the fan. He stated he called in and told the foreman this and the foreman told him to start the #2 fan. The #2 fan was started at 8:10am which is an exhausting only fan. Then around 9am with the #2 fan running a loud explosion was heard on the surface coming from the underground and the #2 fan shut off. No contact has been made with the miner's since the explosion. Both fans have been checked and are operable. The #1 fan is currently running and is located in the 1st line of crosscut and is blowing air across the FAB and exiting out the cutouts to the surface in the #3 entry. The mine is mining in the #2 seam of coal. This seam is known for bad roof conditions, methane, and water. This mine is mining near old mine workings. The map is not up-to-date where dotted lines are shown.

Captains Briefing

The briefing officer will have a designated airtight isolation room located off the fresh air base line, when in this room with the door shut irrespirable air can pass without endangering him/her or anyone else that may be inside. Once the team makes the first team stop inby the FAB that requires an apparatus check the team may not have communications with the briefing office except through the communication system until the clock is stopped. The briefing officer will remain isolated from the team until the clock is stopped. The briefing officer's map will remain at the briefing officer's station during working of the problem. The briefing officer will remain in the designated location when the team is working inby the FAB except when it is necessary to perform work outside that location in the FAB. All mapping by the teams map man, briefing officer and command center attendant must stop when the captain stops the clock or time to complete the problem has ended. All gases on each gas placard found and called out must be recorded accurately on the briefing officer's map, if there are any discounts on the BO's map and these discounts are correct on the Attendant's map, no discount will be assessed on the BO's map. Q and A's from this year may be used to supplement the rules. Brattice cloth will be caution tape attached to clothes pins. In order to be airtight the clothes pins must be attached on both sides and if a diagonal is built the team must use two curtains and they must be attached on both ends and at least once in middle to be considered airtight. All doors in the problem will be tied on one end and a clothes pin on the other end, when the clothes pin is connected to rib line string it will be considered as airtight. At the discretion of the team, apparatus face pieces may be removed 30 minutes after the working clock has been started.

WRITTEN INSTRUCTIONS

- (1) #1 FAN IS A BLOWING ONLY FAN AND CANNOT BE REVERSED.
- (2) #2 FAN IS AN EXHAUSTING ONLY FAN AND CANNOT BE REVERSED.
- (3) BOTH FANS CAN BE STOPPED, BUT ONLY ONE FAN CAN RUN AT A TIME.
- (4) BOTH FANS HAVE AUTOMATIC CLOSING DOORS INSTALLED ON THEM THAT ARE CONSIDERED TO BE AIRTIGHT WHEN CLOSED. THE DOORS AUTOMATICALLY SHUT WHEN THE FAN IS TURNED OFF AND WILL AUTOMATICALLY OPEN WHEN THE FAN IS TURNED ON.
- (5) THE BRIEFING OFFICER MUST REQUEST IN WRITING TO THE SUPERINTENDENT CHANGES THE TEAM IS REQUESTING FOR EACH FAN, SUCH AS TURN ON THE #2 FAN AND STOP THE #1 FAN. THE BRIEFING OFFICER MAY THEN MAKE THE REQUESTED FAN CHANGE USING THE PROVIDED SWITCHES ONCE THE WRITTEN CHANGE HAS BEEN ACKNOWLEDGED BY THE SUPERINTENDENT.
- (6) ACCOUNT FOR ALL MISSING PERSONS
- (7) EXPLORE ALL AREAS OF THE MINE THAT CAN BE DONE SAFELY
- (8) THE TEAM HAS 90 MINUTES TO COMPLETE THE PROBLEM.
- (9) AFTER ALL ENTRANCES HAVE BEEN CHECKED THE ENTIRE TEAM MUST START EXPLORATION INTO THE MINE IN THE NUMBER 2 ENTRY FIRST BEHIND THE TEMPORARY STOPPING.

Fan Changes Requested by the Briefing Officer to the Superintendent.

#1 fan is a blowing fan and is on at beginning of problem.

#2 fan is an exhaust fan and is off at beginning of problem.

1st change _____

2nd change _____

3rd change _____

4th change _____

5th change _____

6th change _____

7th change _____

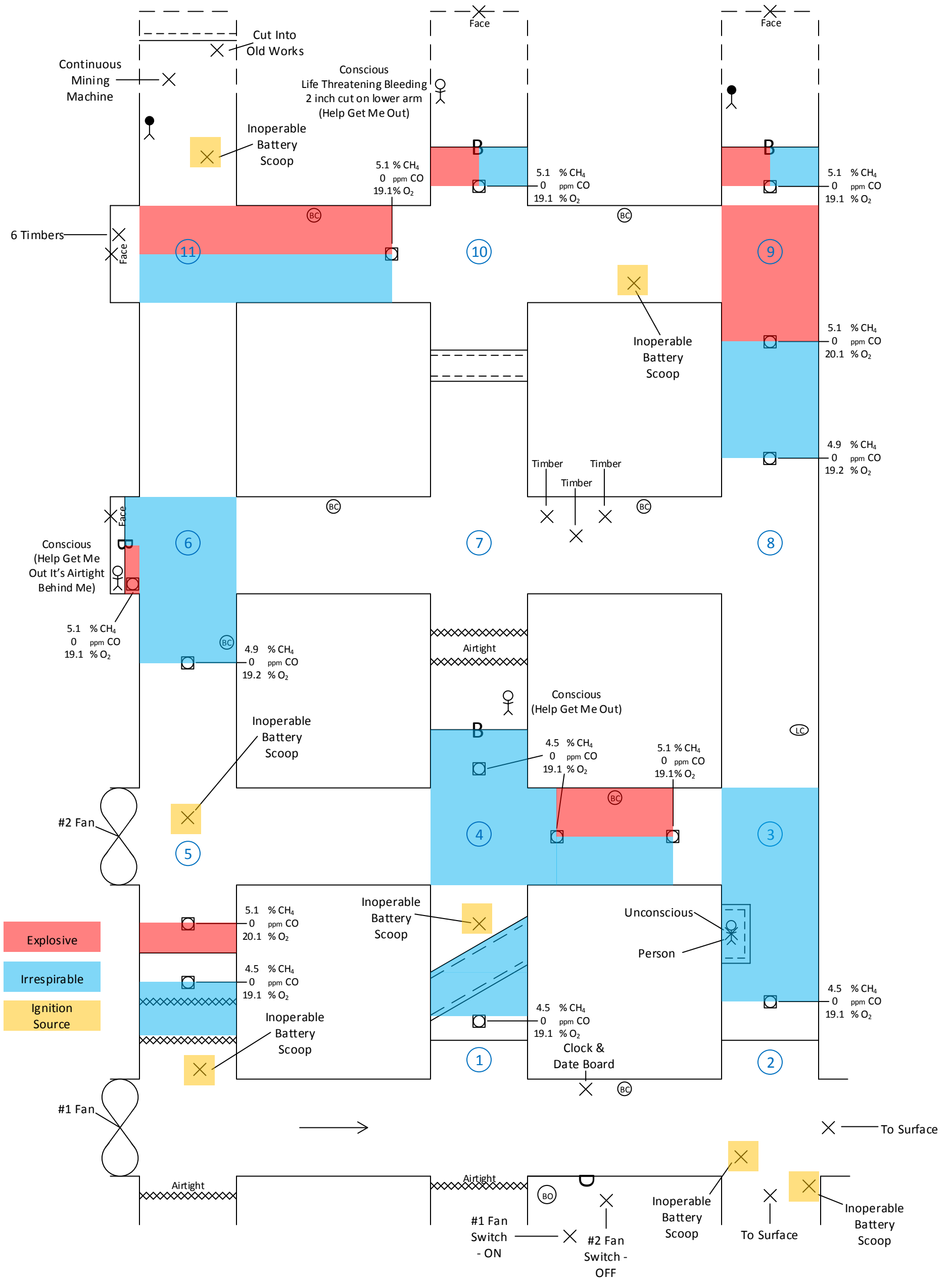
8th change _____

9th change _____

10th change _____

11th change _____

Team Stops



Prior to starting the clock

The team will have 4 minutes to position their equipment and lay out lifeline. Rule 50- if the team fails to start clock after 4 minutes has elapsed.

After clock is started

RULE 26-captain must place date, initials and team number on check board.

RULE 14-communication system shall be tested and gas detectors used must be examined in the presence of a judge.

RULE 17-pull signals arranged if lifeline is used instead of wireless communication system.

RULE 6-examine of gauges and apparatus of all team members prior to going inby the FAB.

Initial check inby in openings

RULE 23-the captain must make a visual roof exam of all entrances to the mine inby the FAB and Roof and Rib test at the caved in #1 entry.

RULE 24C-gas test must be made inby the FAB in the #1 opening and at the stoppings in the #2 and #3 entries as required by rule 24A.

RULE 27- the captain must place date and initials at the cave area in #1entry and on the stoppings in #2 and #3 entries.

Team stops

1. RULE 51-The **entire** team must airlock into the #2 entry first to comply with written instruction #9.

RULE 28-The 50 foot apparatus check must done.

RULE 43- before breaching the temporary an airlock must be built.

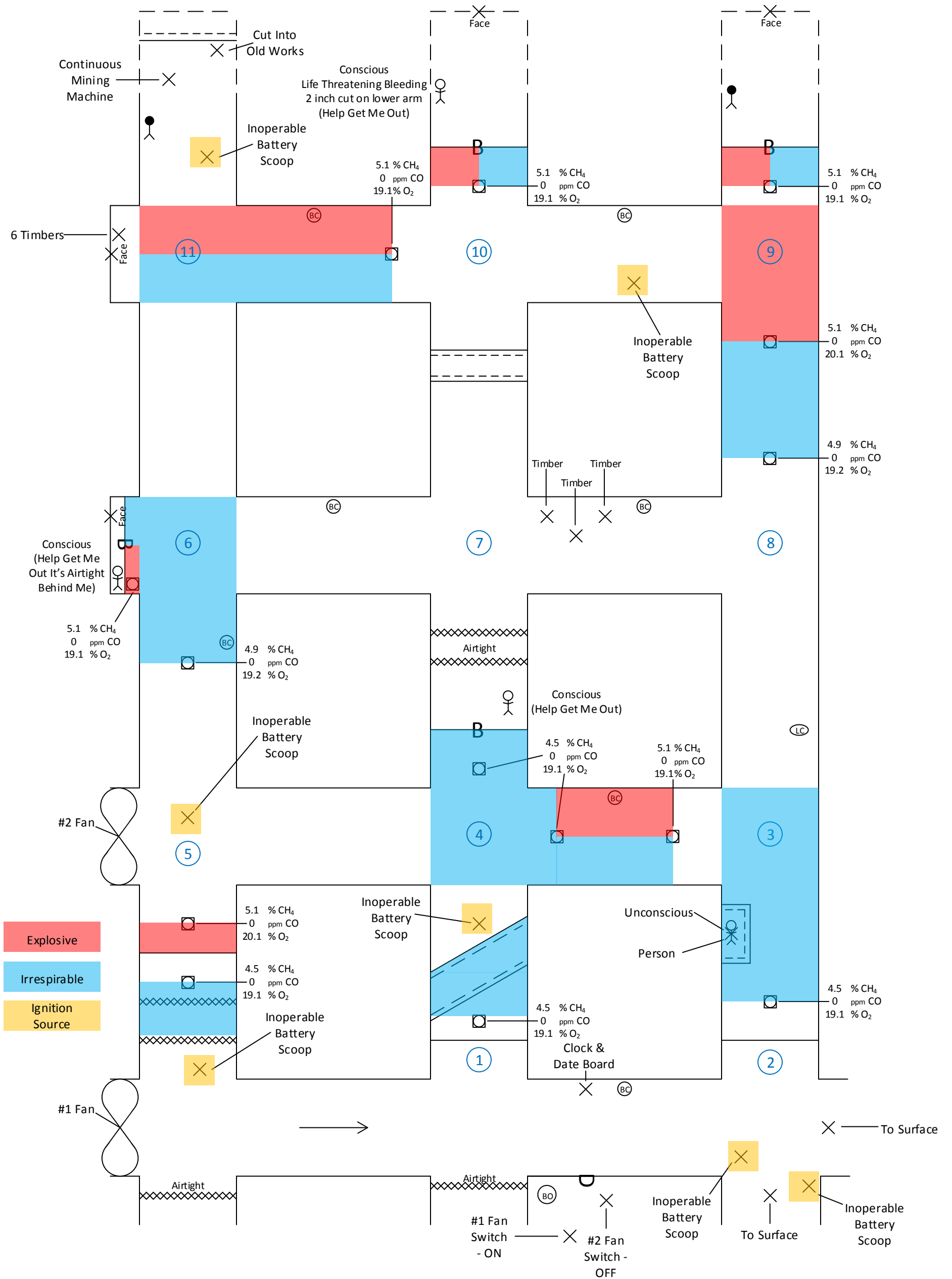
RULE 23-captain must do a roof and rib test prior to building the temporary stopping.

RULE 27- the captain must place date and initials on team built stopping

RULE 24D-captain must take a gas test on back side of temporary stopping after being breeched before others members enter area.

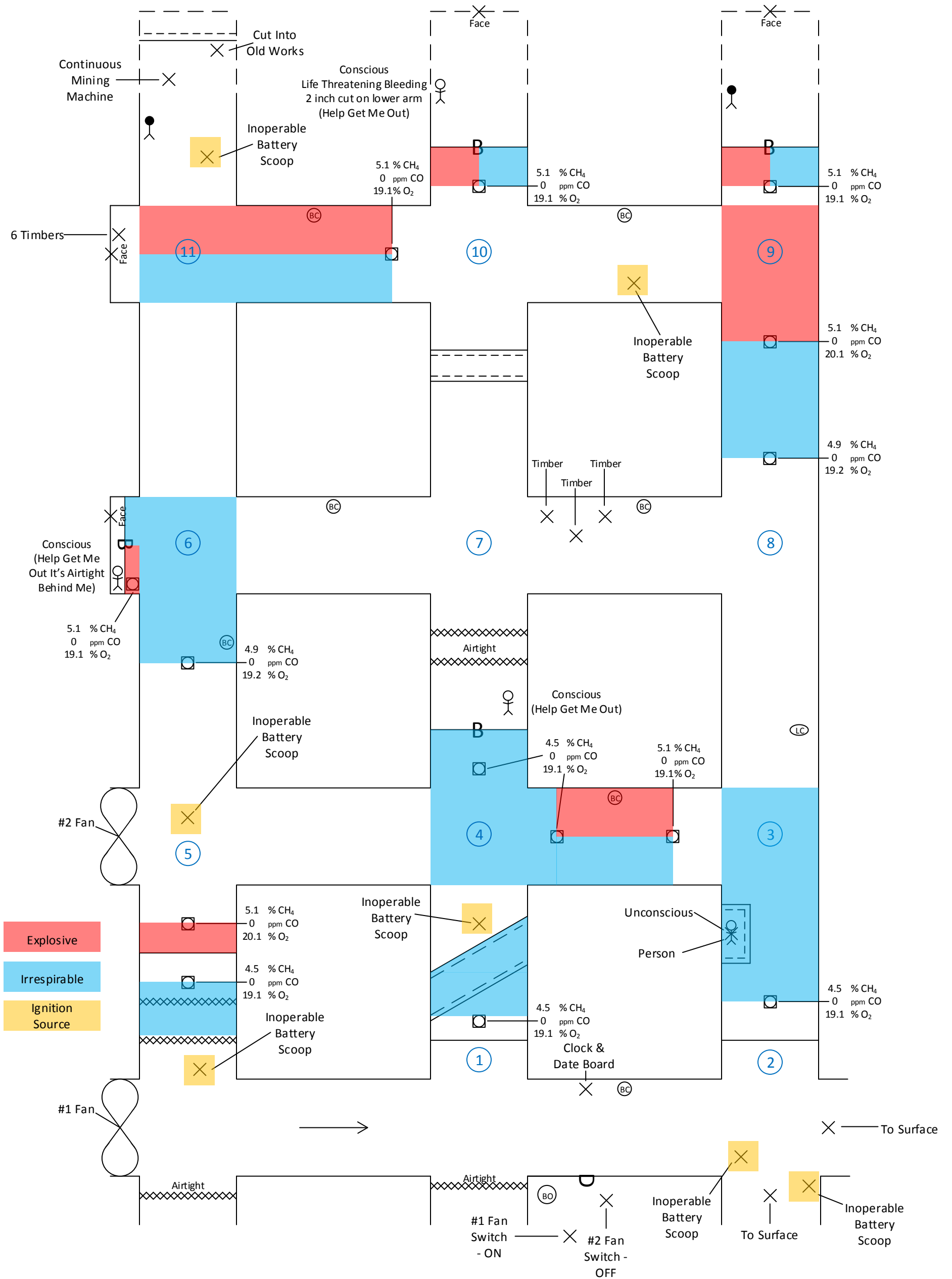
RULE 23- captain must do a roof and rib test at the unsafe roof.

Team Stops



- RULE 27- the captain must place date and initials at the unsafe.
2. RULE 43- before breaching the temporary an airlock must be built.
RULE 23- roof and rib test prior to building the temporary
RULE 27- date, and initials the team built stopping
RULE 24D-captain must take a gas test on back side of temporary stopping after being breeched before others members enter area.
RULE 23- captain must do a roof and rib test at the elongated unsafe roof. (**Zigzag**)
 3. RULE 23- captain must do a visual roof examination in each opening.
RULE 24B-gas test must be done in the x-cut and inby opening to the intersection.
 4. RULE 45D-(**accessible x-cut**)the team must tie across into the #2 intersection.
RULE 23- captain must do a visual roof examination in each opening and a roof and rib test at the backside of the unsafe roof.
RULE 27- the captain must place date and initials at the unsafe roof and on the barricade.
RULE 24A- a gas test must be done at the barricade.
RULE 24B-gas test must be done in the x-cut and outby opening to the intersection.
(The person states, "**HELP GET ME OUT**") cannot vent at this time.
 5. RULE 45D-(**accessible x-cut**) the team must tie across into the #1 intersection.
RULE 23- captain must do a visual roof examination in each opening
RULE 24A- a gas test must be done at the exhaust fan and at the stopping

Team Stops



RULE 24B-a gas test must be done in the inby opening to the intersection.

RULE 27- the captain must place date and initials on the stopping and at the fan/ (**object stops team travel**).

RULE 42C-the team must stop and ventilate the barricade in #2 at this time and would delay the person if they airlock to the backside of the temporary at this stop where it is not necessary at this time to be explored. (See vent #1)

After ventilation #1

RULE 43- before breaching the barricade an airlock must be built.

RULE 23- roof and rib test prior to building the temporary

RULE 27- date, and initials the team built stopping

RULE 24D- captain must take a gas test on back side of barricade after being breeched before others members enter area.

RULE 27- date, and initials the location of the live person.

RULE 12-initial assessment, ask if okay or alright (**verbalize**) .

(No bleeding on this person)

RULE 23- roof and rib at caved area

RULE 27- date, and initials caved area

RULE 34A- an apparatus must be put on the person before entering the crosscut with the 19.1%oxygen to properly protect the person.

Re-entry after taking person to FAB

The team can either tie behind the temporary in #1 or go to team stop #6 in the #1 entry. This area must be made prior to breaking the 2 break limit rule 45E

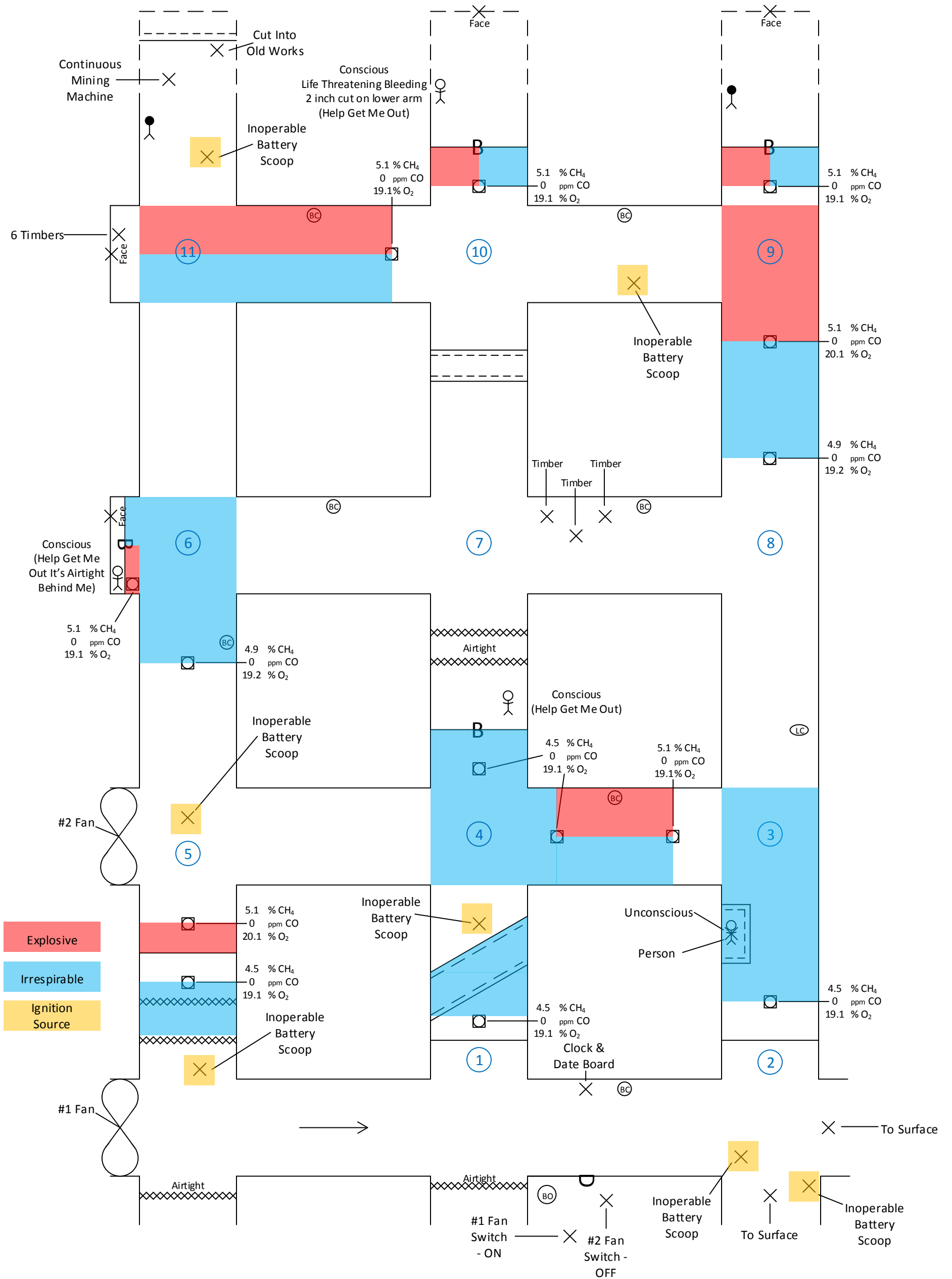
Tie behind Temporary in #1

RULE 43- before breaching the stopping an airlock must be built.

RULE 23- roof and rib test prior to building the temporary

RULE 27- date, and initials the team built stopping

Team Stops



RULE 24D- captain must take a gas test on back side of barricade after being breeched before others members enter area.

RULE 23- roof and rib at caved area

RULE 27- date, and initials caved area

6. RULE 45B-The team must explore to the 2nd line inby FAB by #1 entry due to this being the contaminated entry and the #2 entry being blocked by the caved area.

RULE 23- captain must do a visual roof examination in each opening

RULE 24A- gas test at barricade

RULE 24B-gas test in the x-cut and inby opening

RULE 27-date and initials on barricade

The person states, "**HELP GET ME OUT ITS AIRTIGHT BEHIND ME**" The team cannot ventilate at this time.

7. RULE 45D-(**accessible x-cut**)the team must tie across into the #2 intersection

RULE 23- captain must do a visual roof examination in each opening and do a roof and rib test at the unsafe and caved areas.

RULE 24B-gas test in inby ,outby and x-cut openings

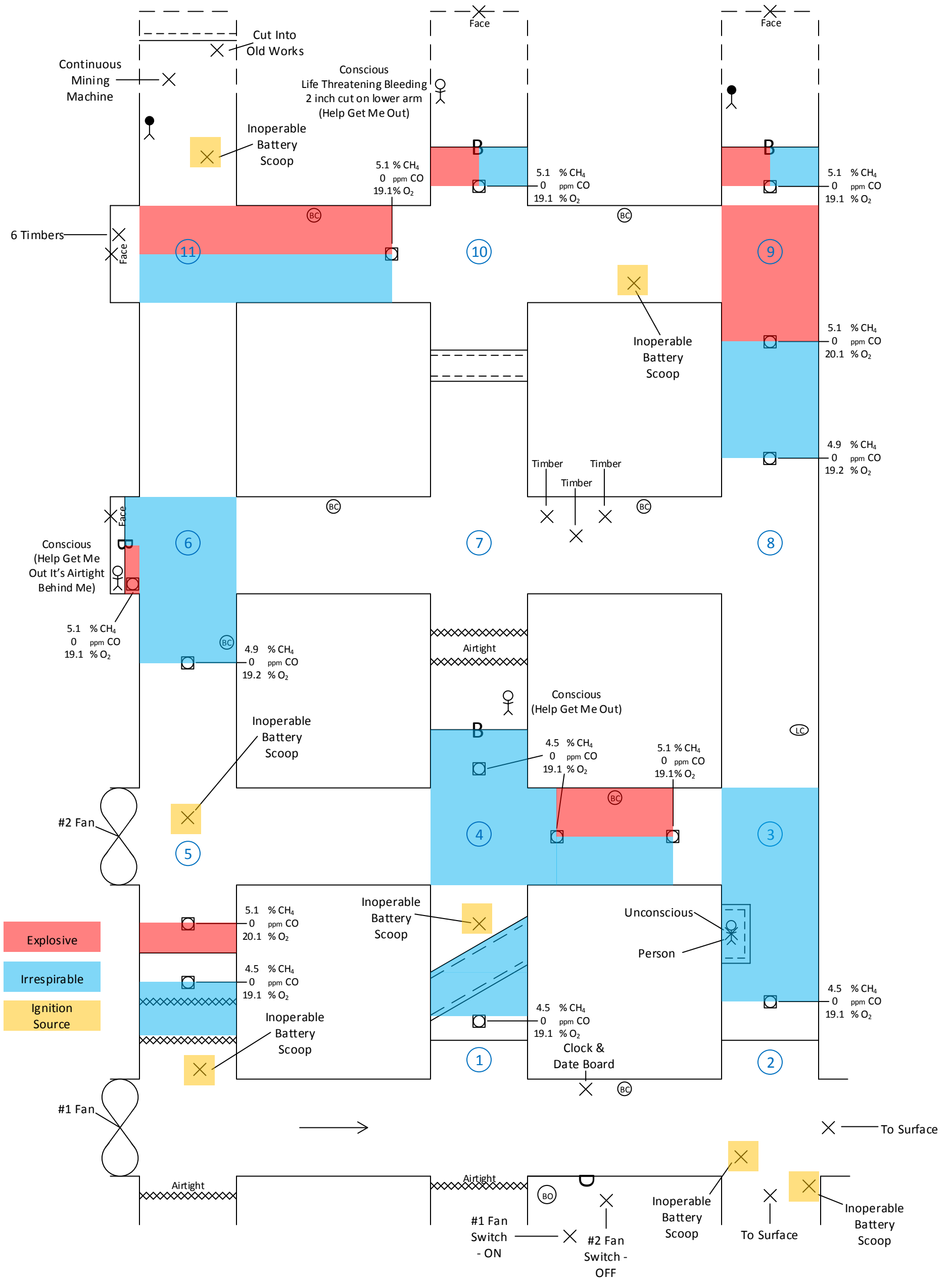
RULE 27-date and initials at unsafe and caved area

RULE 42 c.1-the team must pick up the timbers and travel back to the person in the unsafe roof cannot explore to team stop 8 before doing so or this would be a **delay** to the person in the unsafe roof in #3 entry

Recovering person in unsafe roof with the three timbers provided at team stop 7

RULE 30A-setting timbers as required on page 45 figure 3. (the person can be reached by setting two timbers) the timbers must be set in away when the person is set up to put an apparatus on that the timbers set are still protecting both the patient and persons put apparatus on the patient or will assess discounts under Rule30 for endangerment

Team Stops



RULE 27-date and initials location of person

RULE 12-patient assessment,

- a. ask if okay, or alright, **(verbalize)**
- b. looking for absence of breathing or gasping, **(verbalize)**
- c. check for presence of a carotid pulse 5-10 seconds **also must be verbalize by Q&A's page 11. (person has no bleeding)**

Rule 34A-the patient was found in 19.1 oxygen.an apparatus must be placed on the patient before moving them out of the unsafe roof. **(Covered on page 3 of the Q&A's) or would be assessed 10 point discount under rule34A**

8. The team can travel back up to team stop 8 by the #3 entry.
RULE 23- captain must do a visual roof examination in each opening

RULE 24B-gas test in each opening

RULE 42A-The team now has a way to ventilate the barricade located off #1 entry and will delay the patient if they continue to explore. (See vent #2)

After vent #2 entering the barricade no airlock required

RULE 24D- captain must take a gas test on back side of barricade after being breeched before others members enter area.

RULE 12-initial assessment,

- a. ask if okay or alright, **(verbalize)**
(No bleeding on this person)

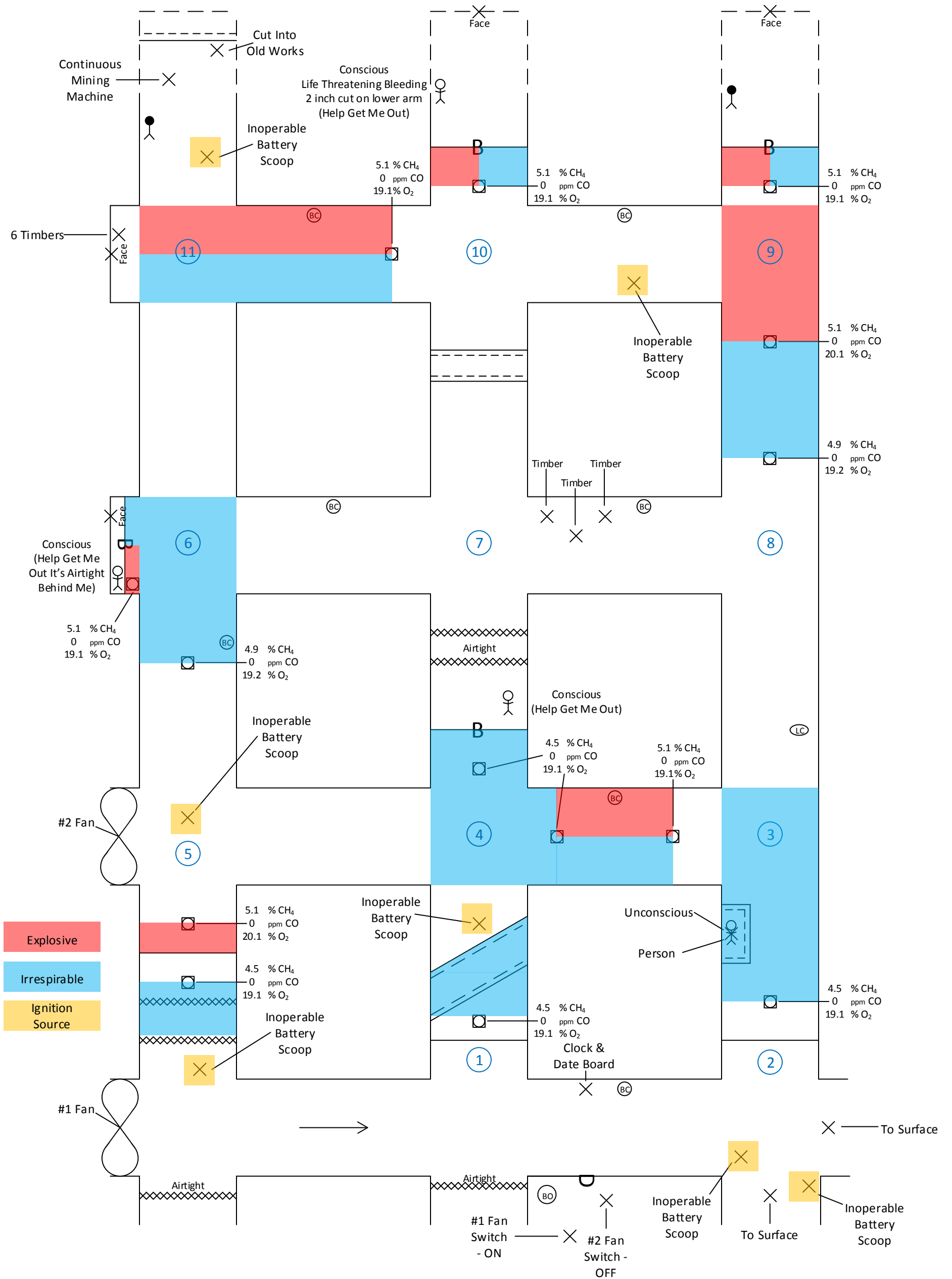
RULE 27-date and initials location of person and the face

RULE 23- roof, rib and face test

RULE 24A-gas test at face

RULE 34A- an apparatus is not necessary if not taken out through the low oxygen that may be still in the second line in x-cut between two and three if not been cleared by team.

Team Stops



9. RULE 45B-The team has to travel to team stop #9 in the last line in #3 entry to be following the contaminant entry due to the adjacent is blocked by unsafe roof.

RULE 23- captain must do a visual roof examination in each opening

RULE 27-date and initials the barricade

RULE24A-gas test at barricade

RULE 24B-gas test in the x-cut opening

(No response from barricade)

10. Team travels to #2 intersection in last line

RULE 23- captain must do a visual roof examination in each opening and roof and rib at the unsafe

RULE 27-date and initials the barricade and the unsafe roof

RULE24A-gas test at barricade

RULE 24B-gas test in the x-cut and outby openings

(The person states “help get me out”) cannot ventilate yet.

11. Team travels to #1 intersection

RULE 23- captain must do a visual roof examination in each opening, roof and rib at the unsafe and roof, rib and face in the butt off.

RULE 27-date and initials the location of the body also D&I’s at the face and the unsafe.

RULE24A-gas test at butt off face

RULE24B-gas test the inby and out openings of the intersection

(Now ready for vent #3)

After clearing barricade in #2

RULE 43- before breaching the barricade an airlock must be built.

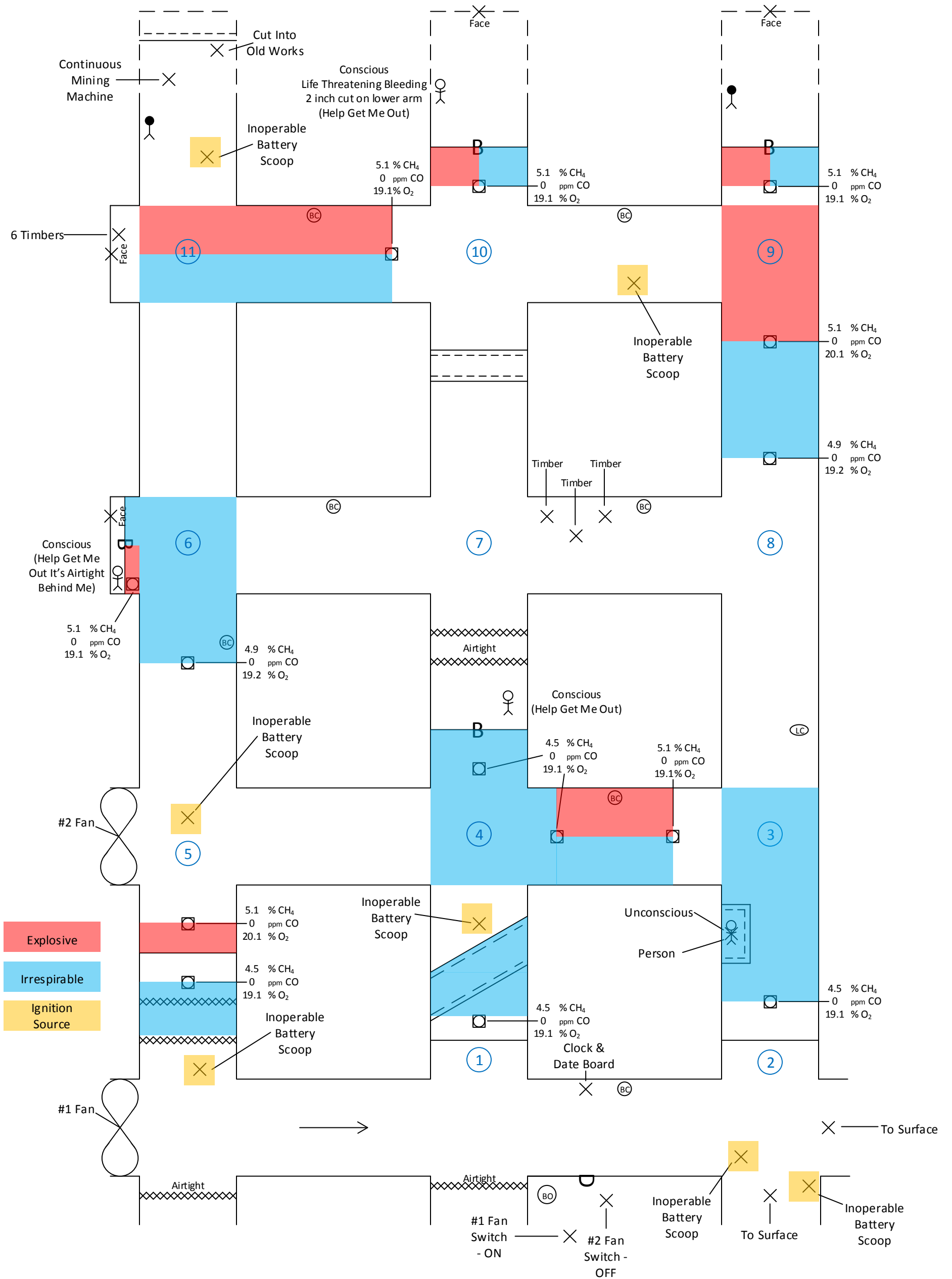
RULE 23- roof and rib test prior to building the temporary

RULE 27- date, and initials the team built stopping

RULE 24D- captain must take a gas test on back side of barricade after being breeched before others members enter area.

RULE 27- date, and initials the location of the live person.

Team Stops



RULE 12-initial assessment, conscious person

- a. ask if okay or alright, (**verbalize**)
- b. **The person has life threatening bleeding, (2 inch cut on the lower arm)**

RULE34B

- a. apply direct pressure with glove hand (**verbalize**)
- b. apply dressing to wound (cover entire wound) (**verbalize**)
- c. elevate the cut arm while still applying direct pressure (**verbalize**) **Q&A pg7-8**
- d. bleeding is now controlled (**verbalize**)
- e. the team must now place a bandage dressing over the wound dressing **Q&A pg-3**

RULE 23- roof, rib and face test

RULE 27- date, and initials at face

RULE24A-gas test at face

After clearing barricade in #3

RULE 43- before breaching the barricade an airlock must be built.

RULE 23- roof and rib test prior to building the temporary

RULE 27- date, and initials the team built stopping

RULE 24D- captain must take a gas test on back side of barricade after being breeched before others members enter area.

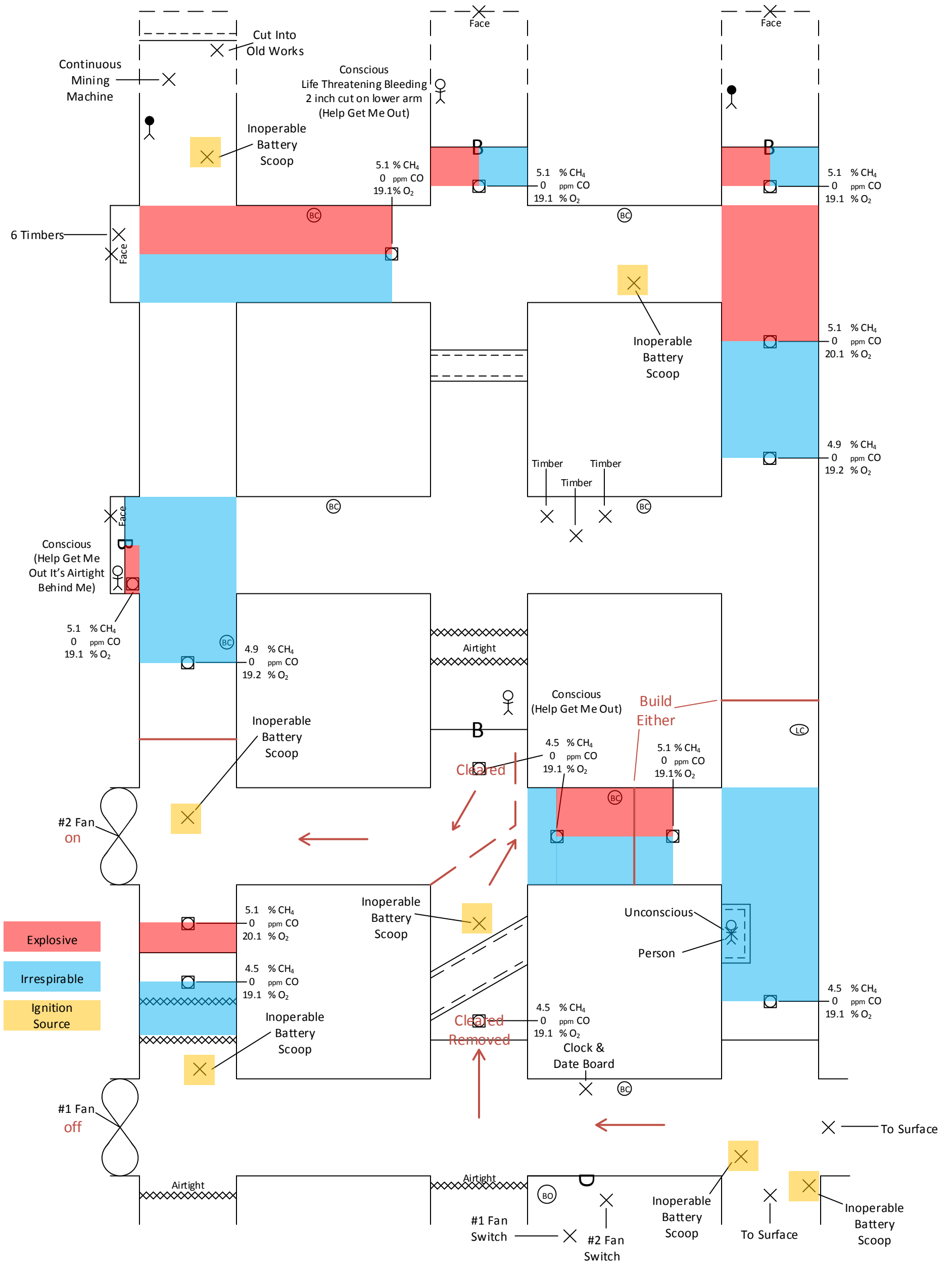
RULE 27- date, and initials the location of the body and at face.

RULE 23- roof, rib and face test

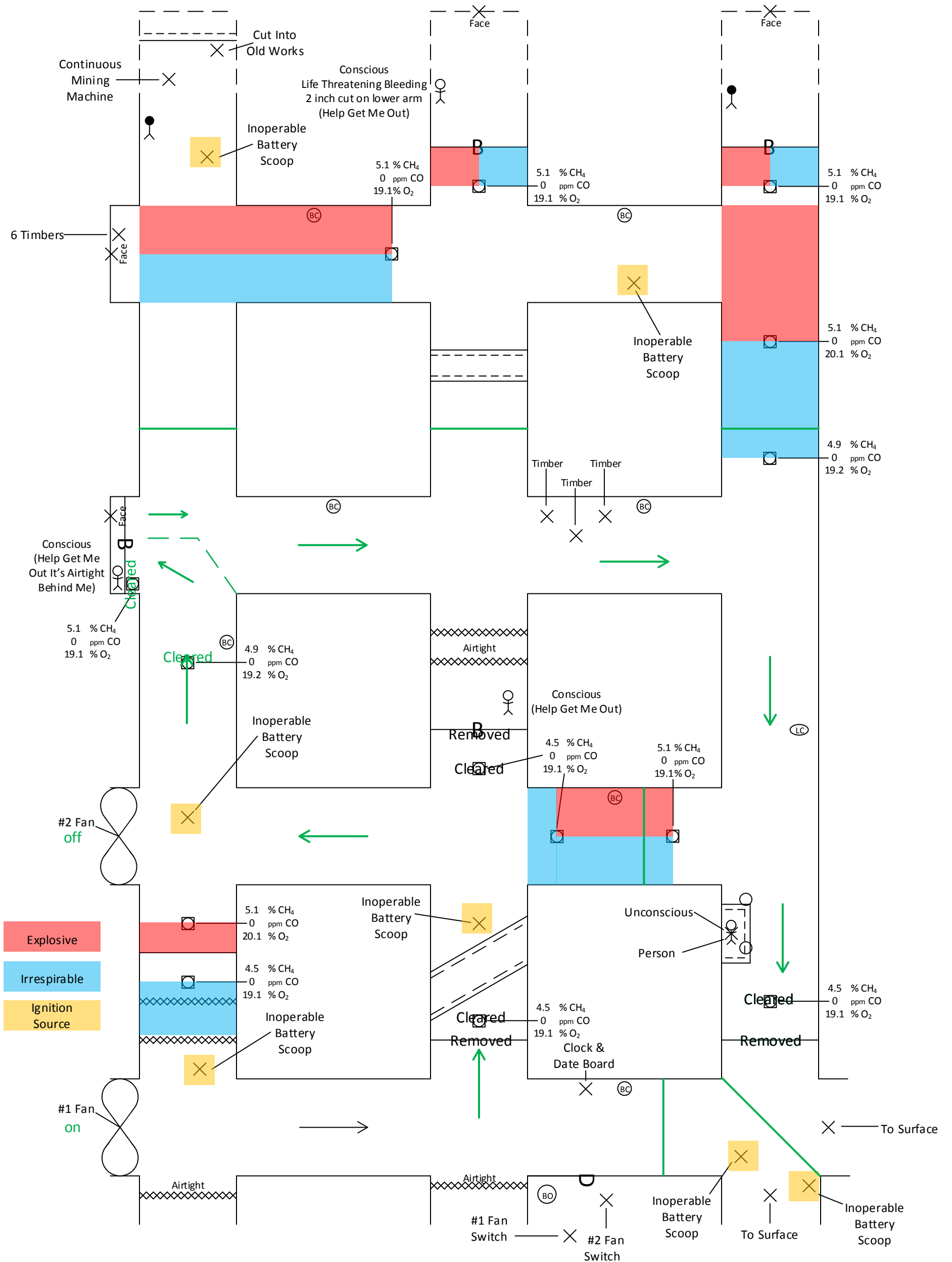
RULE24A-gas test at face

Problem is now complete.

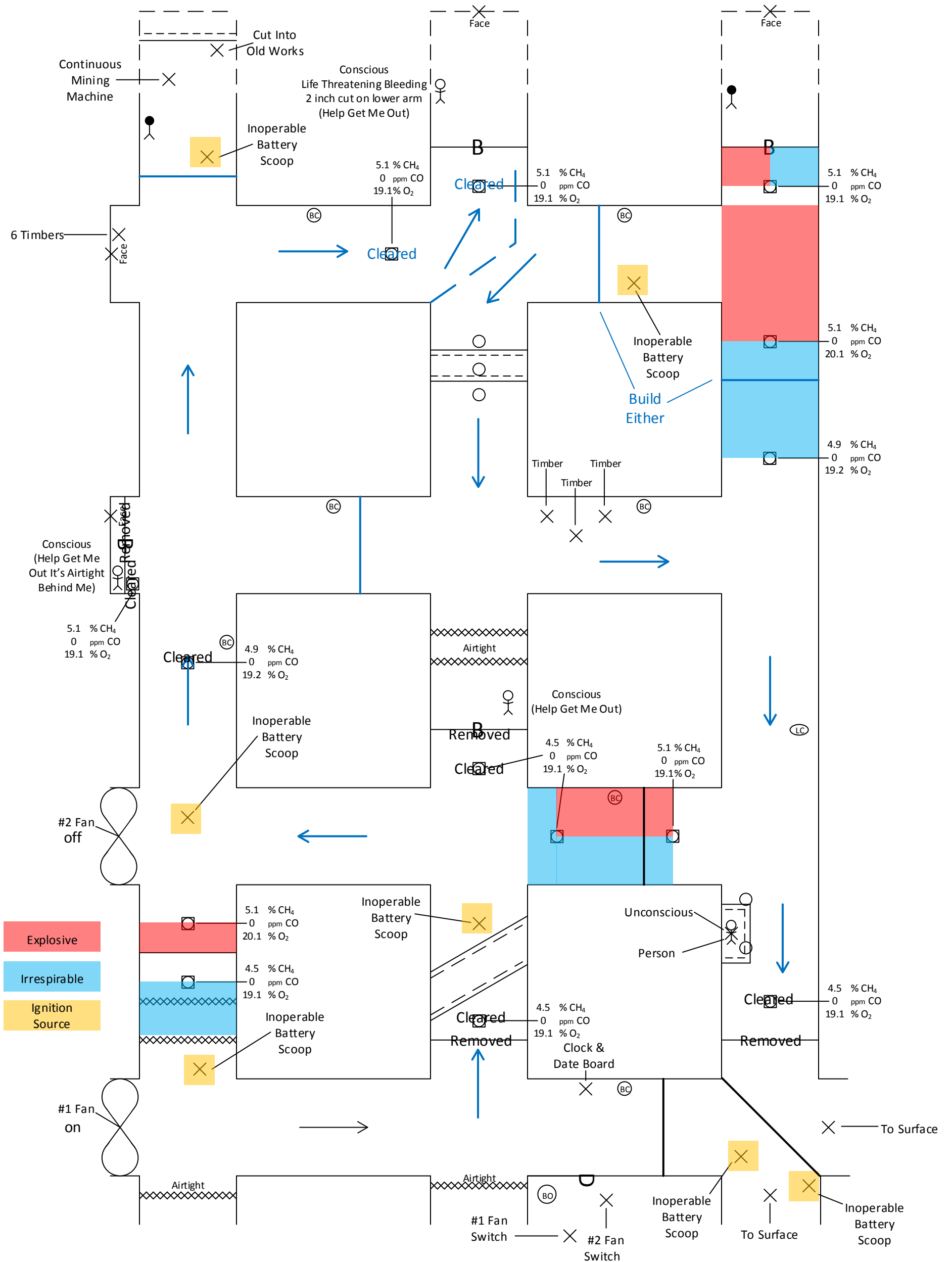
Vent #1



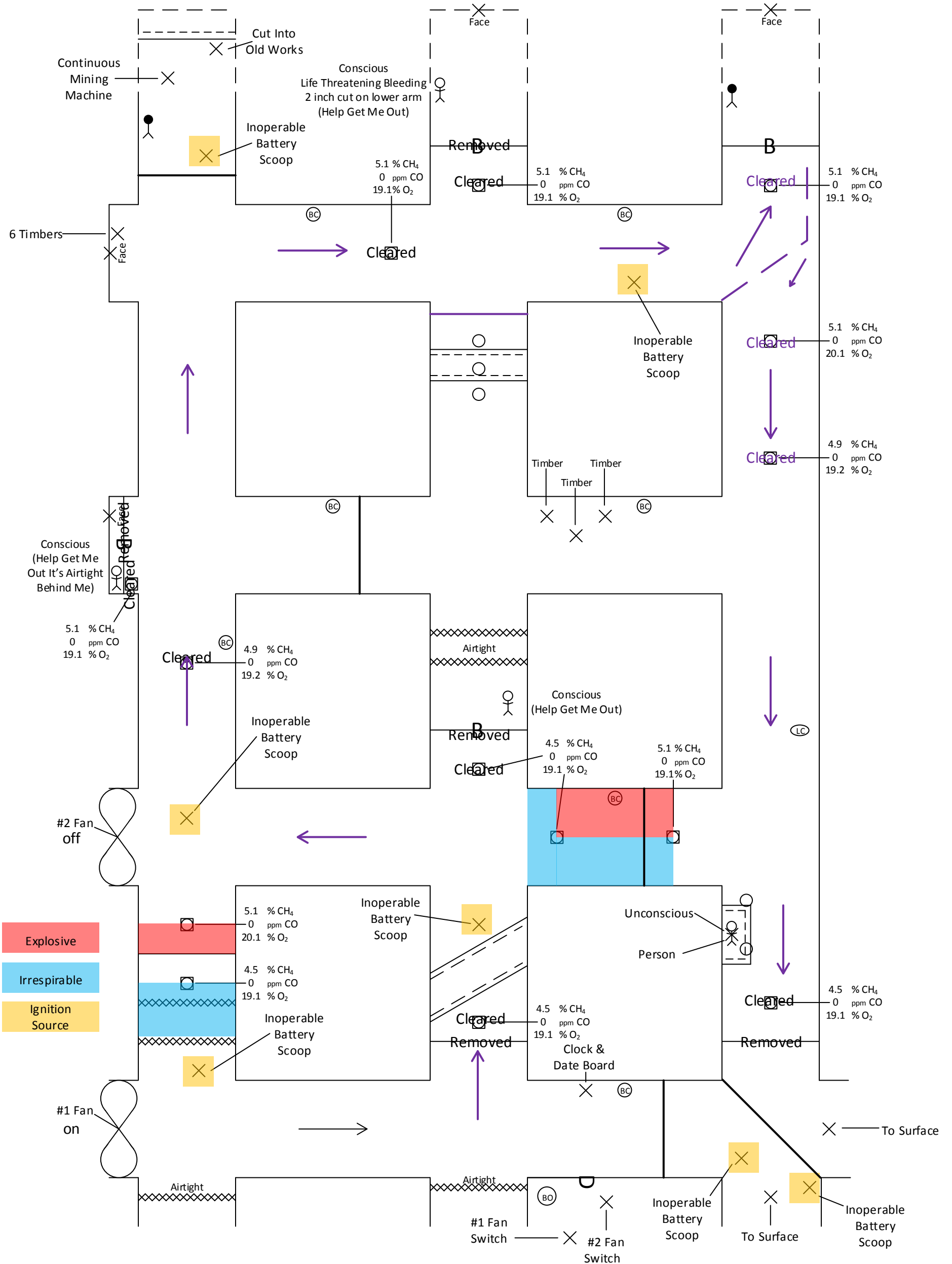
Vent #2



Vent #3

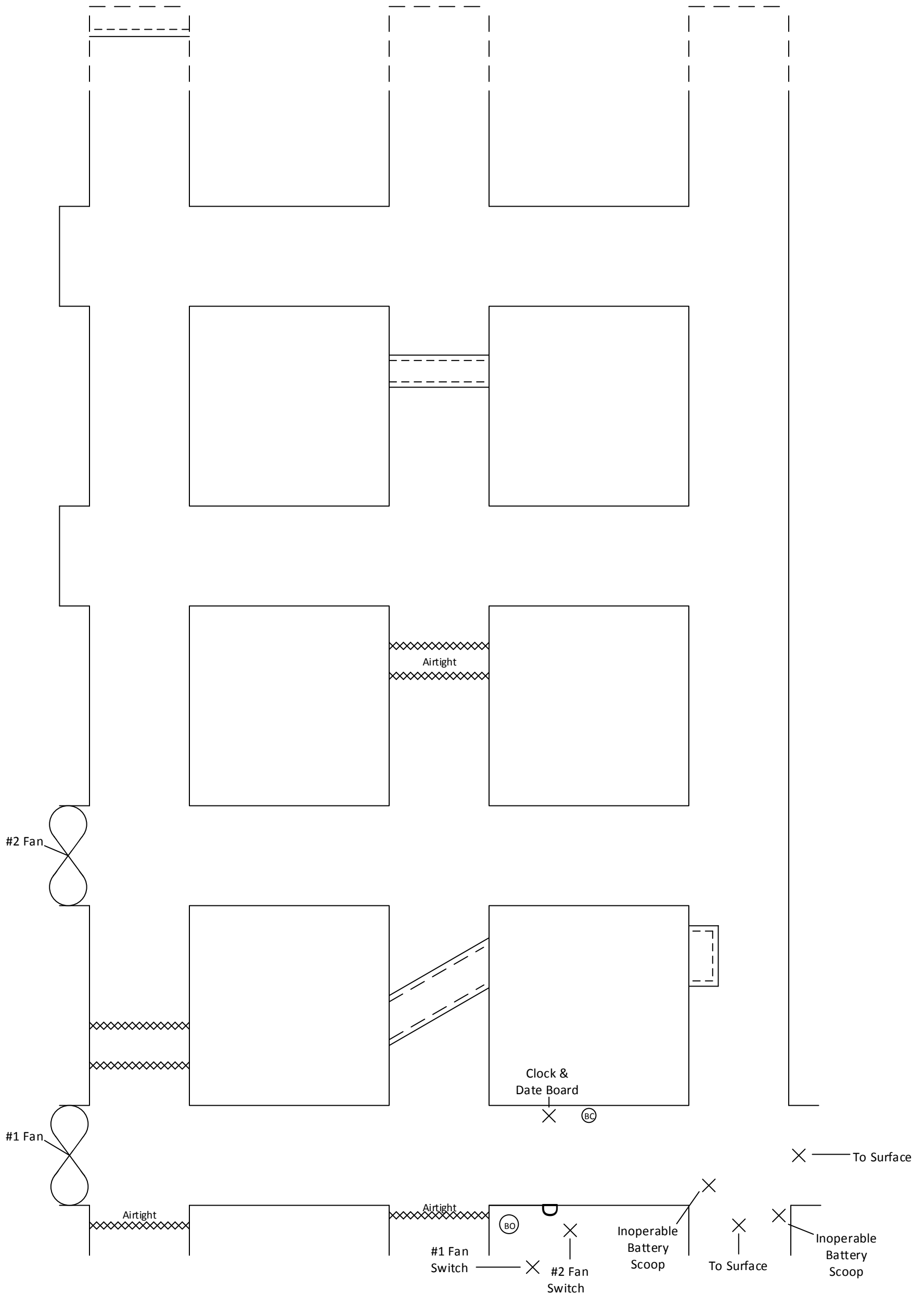


Vent #4



Signature of Captain or Designee: _____

Final Vent Map



Show the following as they were left in the mine and fresh air base:

- vent controls left intact
- fan switches, on or off